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# Chapter 1

## *Need for and Purpose of Proposed Action*

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### 1.1 INTRODUCTION

The Federal Highway Administration (FHWA), the Texas Department of Transportation (TxDOT), and the Alamo Regional Mobility Authority (Alamo RMA) are proposing improvements to an approximately eight-mile stretch of United States (US) Highway 281 extending from the south at Loop 1604 within the city of San Antonio, to the north at Borgfeld Drive in northern Bexar County, Texas (**Figure 1-1**). The four direct connector ramps that comprise the northern half of the US 281 interchange with Loop 1604 are included in the proposed improvements.

The proposed action has the logical termini of Loop 1604 on the south and Borgfeld Drive on the north, which provide rational end points for transportation improvements and review of environmental impacts. North of Borgfeld Drive, the next two major intersections with US 281 – Farm-to-Market (FM) 1863 and State Highway (SH) 46, respectively – are each already grade-separated interchanges. South of Borgfeld Drive, grade-separated interchanges occur at Sonterra Boulevard and Loop 1604 and continue south as part of the existing US 281 freeway. From Borgfeld Drive south to Redland Road, intersections are currently controlled by traffic signals and signs, a condition that for many years has given rise to calls to be improved with overpasses or grade-separated interchanges, along with direct ramp connections between US 281 and Loop 1604.

Borgfeld Drive and Loop 1604 also provide rational end points for a review of the environmental impacts over a broad geographic area. This approximately eight-mile US 281 project corridor makes 12 surface water crossings and traverses both the Edwards and Trinity Aquifers. The study area for review of potential direct, indirect and cumulative environmental impacts encompasses approximately 560 square miles in northern Bexar, western Comal and small parts of Kendall and Blanco Counties.

The proposed action has independent utility without the benefits of the implementation of other transportation improvements. The project improvements would function as a usable roadway, would not require implementation of any other projects to operate, and would not restrict consideration of alternatives for other foreseeable transportation improvements.



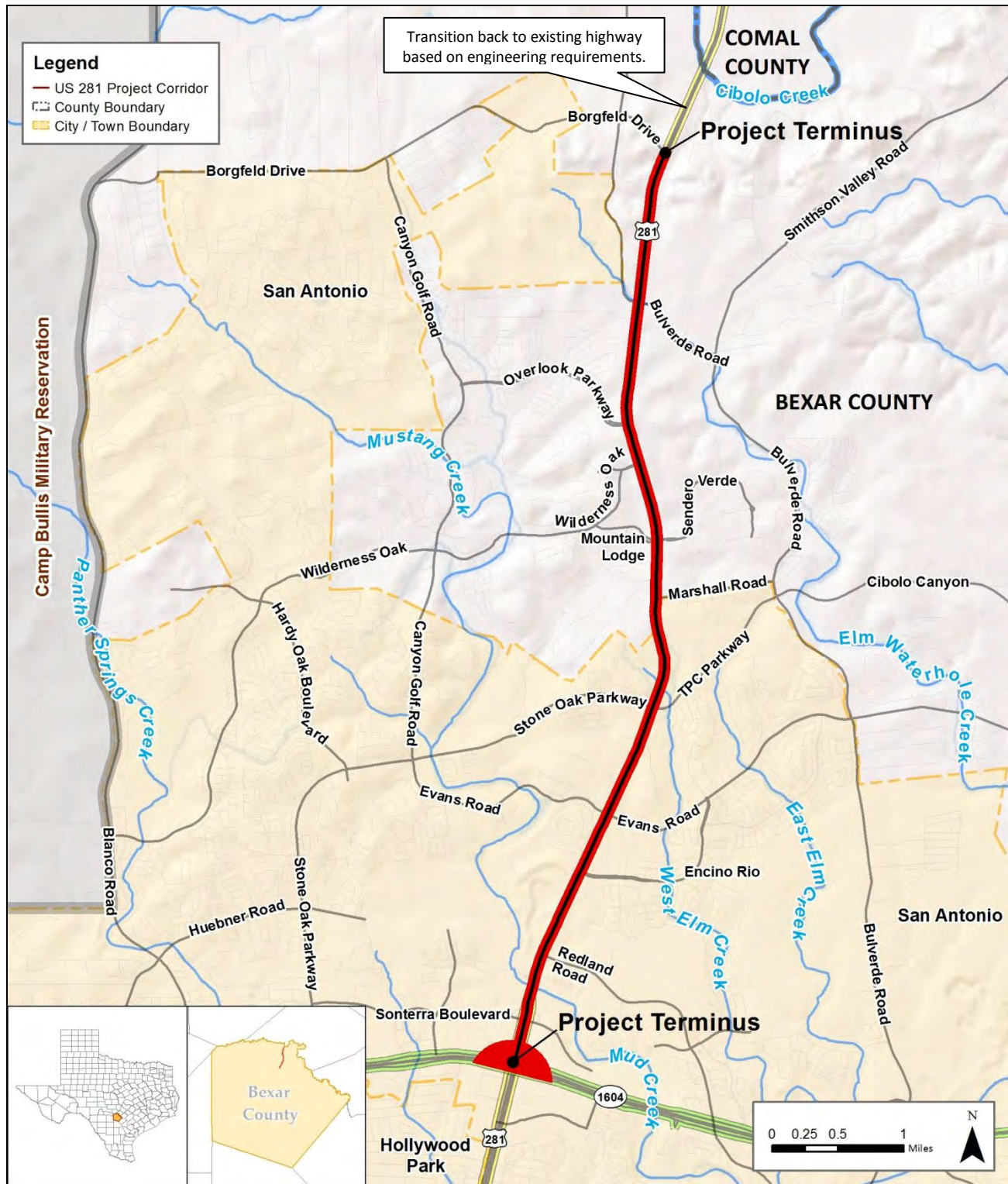
The need for improvements to the US 281 project corridor arises from historic and continuing trends in population and employment growth along the corridor and within the surrounding areas. This growth generates increasing amounts of vehicle travel, which in turn impedes the function of US 281 to provide regional mobility and local access, leading to lengthy travel delays and a high rate of vehicle crashes. These transportation issues negatively affect the quality of life for communities surrounding the US 281 project corridor. The purpose of the US 281 Corridor Project is to improve mobility and accessibility, improve safety, and enhance community quality of life.

US 281 from Loop 1604 to Borgfeld Drive is an integral part of the San Antonio-Bexar County Metropolitan Planning Organization's (SA-BC MPO) *Mobility 2035*, which is the region's long-range metropolitan transportation plan (MTP). *Mobility 2035* was adopted by the SA-BC MPO on December 7, 2009 and most recently updated on January 28, 2013. The project is included in *Mobility 2035* in two separate entries, a six-lane expressway (four non-toll lanes and two managed lanes through Stone Oak Parkway; six managed lanes from Stone Oak Parkway to Comal County line). The second entry for the project in *Mobility 2035* is a four-lane expressway (four non-toll lanes to Stone Oak Parkway) and non-toll northern interchange connectors at Loop 1604. The project is shown in *Mobility 2035* to have a combined estimated cost of \$521,513,685 in year-of-expenditure (YOE) dollars.

*Mobility 2035* allocates Category 2 funding (Texas Mobility Fund) funding to this project in Fiscal Years (FY) 2013 through 2020 in the total amount of \$86,000,000. Other sources of funding for this project identified in *Mobility 2035* include \$6 million in Proposition 12 funds, \$48 million in Advanced Transportation District (ATD) funds, and \$30 million in City of San Antonio 2012 bond sale proceeds, and other local contributions financed by toll revenues. Additional non-toll sources of funding may be allocated to US 281 improvements by the SA-BC MPO's governing body, the Transportation Policy Board, in future *Mobility 2035* updates, amendments or future MTPs. The project is included in the FY 2011–2014 Transportation Improvement Program (TIP). The TIP was unanimously approved by the SA-BC MPO Transportation Policy Board at their meeting on May 17, 2010. The project is also included in the FY 2013–2016 TIP approved by the SA-BC MPO Transportation Policy Board at their meeting on April 23, 2012. The project was subsequently included in the FY 2013–2016 Statewide TIP (TxDOT 2012). The project's estimated time of completion is 2018.



1 **Figure 1-1: US 281 project corridor**



Source: US 281 EIS Team, 2011





## 1.2 PROJECT HISTORY

Several attempts to improve the US 281 project corridor have been made by FHWA and TxDOT over the last 25 years (**Figure 1-2**). Project planning, environmental studies, engineering and public involvement activities have been conducted almost continuously since the mid-1980s in support of numerous Categorical Exclusions (CE) and Environmental Assessments (EA) under the National Environmental Policy Act (NEPA). However, the only additional capacity provided as a result of these efforts was in 1990 with the construction of improvements between Bitters Road and Sonterra Boulevard, which encompassed the southern end of the US 281 project corridor. That project was part of the NEPA action taken on August 8, 1984 when FHWA issued a Finding of No Significant Impact (FONSI) for an EA that addressed a proposal to add additional travel lanes along US 281 from Bitters Road (3.1 miles south of Loop 1604) to near Evans Road (2.5 miles north of Loop 1604). FHWA reevaluated portions of this EA in 2000 and 2005, both times determining that no significant impacts would occur from the proposed improvements.

FHWA also issued a FONSI and approved three CEs for improvements to the interchanges with US 281 at Loop 1604, Stone Oak Parkway and Borgfeld Drive. In September 2005, following a reevaluation, TxDOT requested construction bids for US 281 improvements between Loop 1604 and Marshall Road that included improvements to Stone Oak Parkway.

In response to a legal complaint in late 2005, FHWA withdrew all prior environmental approvals, which resulted in the cancellation of construction activities along US 281 between Loop 1604 and Marshall Road. FHWA and TxDOT decided to prepare a new EA covering the entire US 281 project corridor from Loop 1604 to Borgfeld Drive. That NEPA process concluded in August 2007 with FHWA's issuance of a FONSI. Another legal complaint was filed in February 2008, and FHWA again decided to withdraw its approval. This time, FHWA called for the preparation of an Environmental Impact Statement (EIS) for US 281 from Loop 1604 to Borgfeld Drive and acknowledged that the Alamo RMA would be responsible for preparing the EIS.

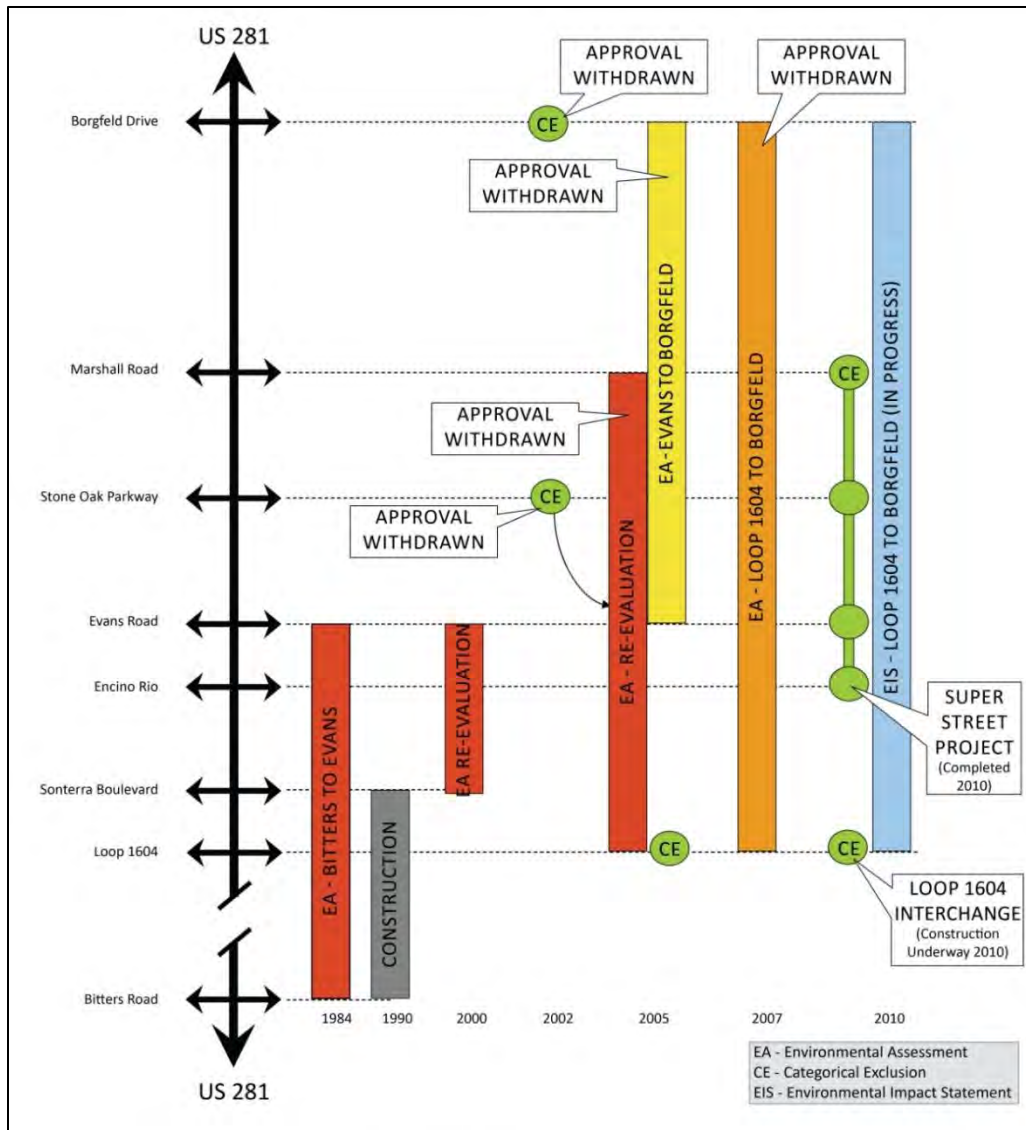
Currently, US 281 is a four-to-six-lane divided roadway within the project limits. Northbound and southbound frontage roads are located at the southern end of the US 281 project corridor, from Loop 1604 to 0.2 miles north of Sonterra Boulevard. Two transportation improvement projects were recently approved in the vicinity of the US 281 project corridor: the US 281 Super Street and the southern half of the US 281 interchange with Loop 1604. These projects, briefly described below, are primarily intended to improve roadway operations and safety.

### 1.2.1 US 281 Super Street

The Alamo RMA received approval of a CE from FHWA in September, 2009 to construct operational improvements on US 281 at Encino Rio, Evans Road, Stone Oak Parkway and Marshall Road, commonly referred to as the US 281 Super Street. The 3.1-mile project, completed in October 2010, is designed to temporarily improve traffic flow and improve safety for motorists (Alamo RMA 2009). The Super Street improvements help reduce near-term peak hour congestion but would not satisfy 2035 forecasted travel demand.



1 **Figure 1-2: History of US 281 NEPA documentation**



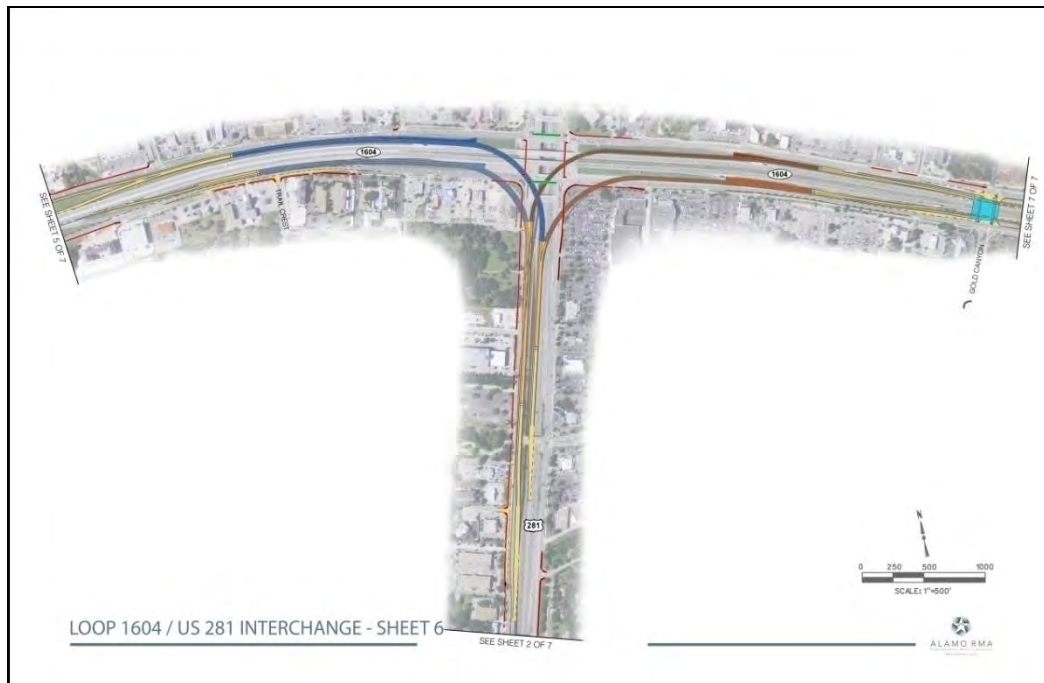
Source: Alamo RMA, TxDOT, US 281 EIS Team, 2010

### 1.2.2 US 281/Loop 1604 Interchange

The Alamo RMA received approval of a CE from FHWA in February, 2010 to construct improvements to the southern half of the US 281 interchange with Loop 1604. This project involves the construction of four non-toll direct connector ramps linking US 281 and Loop 1604 (Figure 1-3). It also includes frontage road and pedestrian improvements.



# 1 Figure 1-3: US 281/Loop 1604 interchange improvements



Source: Alamo RMA, 2010

## 1.3 NEED FOR THE PROPOSED ACTION

The US 281 Corridor Project needs to address growth, functionality, safety, and community quality of life. Factors contributing to the need for improvements are briefly summarized below and documented more fully in the sections that follow.

- The number of people living and working within the northern Bexar County and southern Comal County Census Tracts adjacent to the US 281 project corridor has increased dramatically since 1980. Population and employment is expected to continue growing over the next 25 years.
- The US 281 project corridor has had only minor capacity improvements since the mid-1970s. As a result, travel demand exceeds capacity during the morning southbound and evening northbound peak periods along the most heavily travelled section of the corridor, between Loop 1604 and Marshall Road. Traffic volumes are expected to increase substantially over the next 25 years.
- The high number of intersecting cross-streets and driveways that provide local access along the US 281 project corridor creates many conflict points that contribute to traffic safety and congestion problems.
- Crash rates on the US 281 project corridor are higher than the statewide rates for similar types of roadways.
- Failure to address the US 281 project corridor's transportation problems has contributed to declining quality of life for nearby communities. Harmful vehicle emissions pose health risks; excessive traffic noise is unabated; the corridor has become visually and aesthetically unappealing; and there is a lack of transportation choices due to the absence of public transportation service and facilities for walking and bicycling.

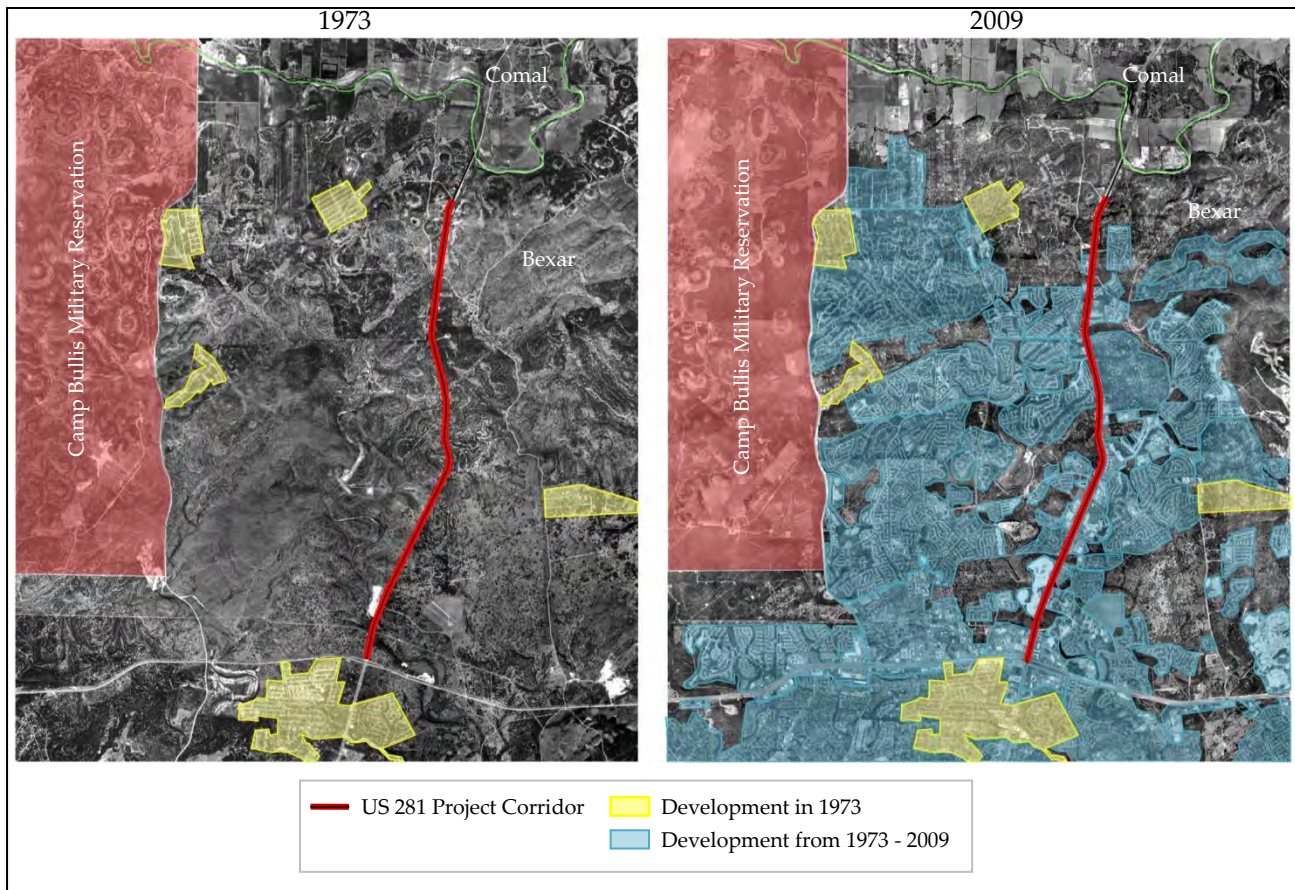




### 1.3.1 Growth

Prior to the early 1980's land around the US 281 project corridor was largely rural and undeveloped. Since that time the area has become developed, with single- and multi-family subdivisions, and commercial and retail businesses now line the US 281 project corridor on both sides. The aerial photographs in **Figure 1-4** show the intensifying spread of land development to the east and west of the US 281 project corridor between 1973 and 2009.

**Figure 1-4: Aerial view of corridor development from 1973 through 2009**



Source: Texas Natural Resources Information System, 1973 Aerial, City of San Antonio, 2009 Aerial, US 281 EIS Team, 2010

### Population and Employment Growth

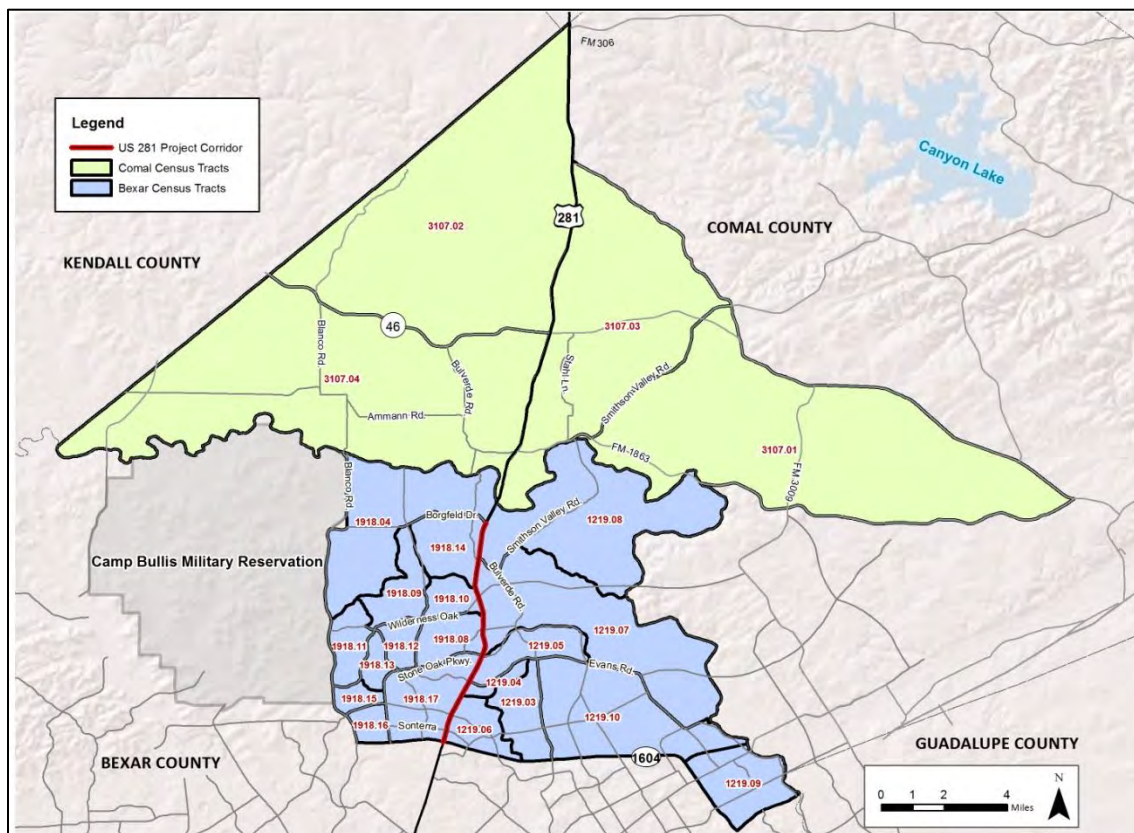
As land development has occurred, the number of people who live and work within the area has dramatically increased. **Figure 1-5** shows the Demographic Study Area, which includes 23 US Census Tracts that surround the US 281 project corridor north of Loop 1604 and within which the SA-BC MPO provides population and employment forecasts for the year 2035. Historical and forecasted population, household and employment levels for this area are shown in **Figure 1-6** and summarized below:

- The number of people living within the northern Bexar County and southern Comal County Census Tracts adjacent to the US 281 project corridor has increased from 6,313 in 1980 to 73,537 in 2005, an increase of about 1,065 percent over the 25-year period (US Census Bureau 1980 and 2005c).



- According to the forecast developed by the SA-BC MPO for *Mobility 2035*, the population of this area will reach 142,240 by 2035, an increase of about 93 percent from 2005.
- The number of households in this same area grew by nearly 20,000 between 1980 and 2005 and is forecast to grow by about another 25,000 by 2035 (US Census Bureau 1980 and 2005b; SA-BC MPO 2009a).
- The number of employees working in this area has also dramatically increased, from 3,312 in 1980 to 25,635 in 2005, an increase of about 674 percent (US Census Bureau 1980 and 2005a).
- Between 2005 and 2035 more than 18,000 additional employees are forecasted to work here (SA-BC MPO 2009a).

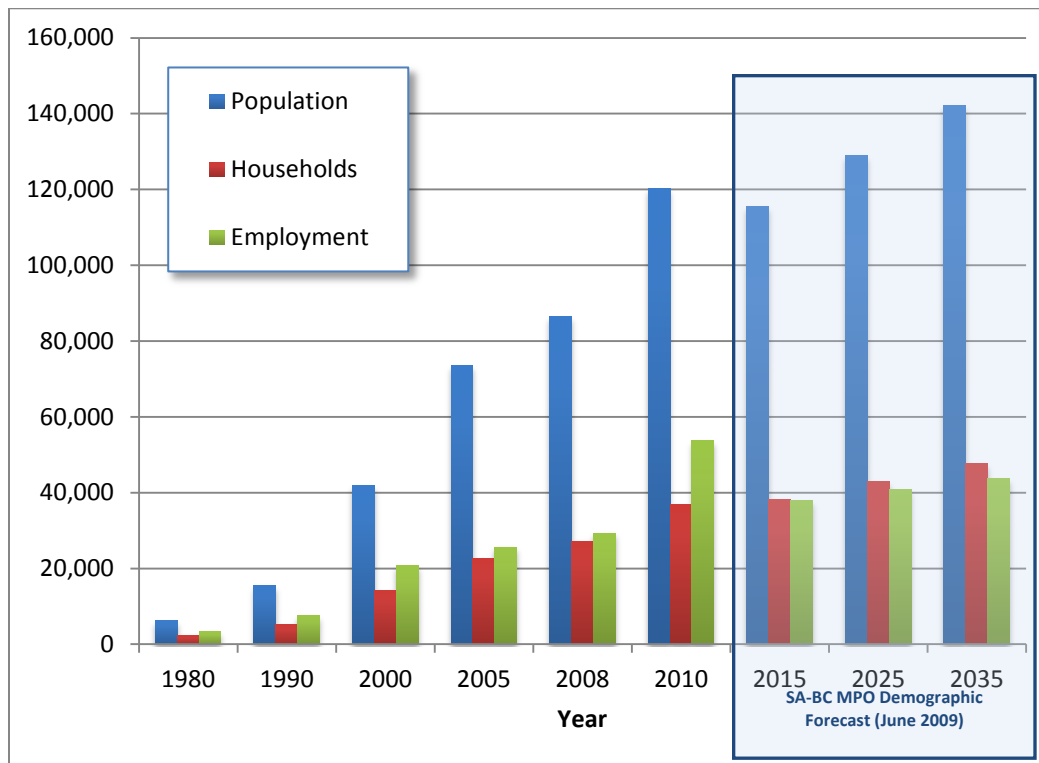
Figure 1-5: Demographic study area



Source: US Census Bureau, 2010, US 281 EIS Team, 2011



**Figure 1-6: Historical and forecasted population, household and employment levels within the US 281 demographic study area**



Sources: US Census Bureau 1980, 1990, 2000, 2005, 2008 and 2010 Census; US Census Bureau 2006-2010 American Community Survey; SA-BC MPO Forecast 2015, 2025 & 2035, June 2009.

NOTE: 1980, 1990, and 2000 population, households and employment were sourced from the 1980, 1990 and 2000 decennial Census; 2005 and 2008 population, households and employment were sourced from 2005 and 2008 Census projections; 2010 population was sourced from the 2010 decennial Census; 2010 households and employment were sourced from the 2006-2010 American Community Survey; and 2015, 2025 and 2035 were sourced from the SA-BC MPO Forecast, June 2009.

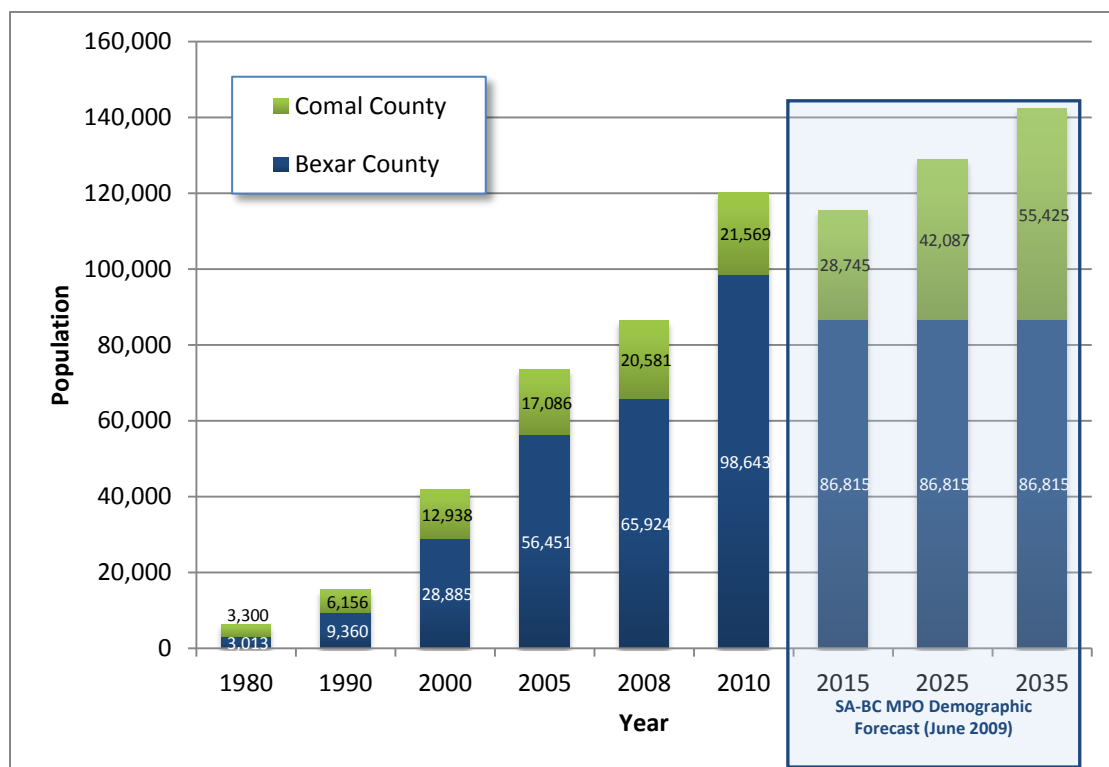
The population forecast shown in **Figure 1-7** assumes that the number of people living within the Bexar County portion of the Census Tracts surrounding the US 281 project corridor will remain unchanged after the year 2015. This is due to the socioeconomic land use scenario assumed for *Mobility 2035*. As part of *Mobility 2035*, the SA-BC MPO collaborated with the Alamo Area Council of Governments (AACOG) in 2009 to develop three primary socioeconomic land use scenarios to guide population and employment forecasts for the region. Each scenario maintained the same total amounts of future regional population and employment, but they differed in how future growth would be distributed. These three scenarios are as follows:

- *Current Trends Development Scenario (CTD)* – assumes that recent land use development trends will continue through 2035: the majority of new development occurs outside Interstate Highway (IH) 410 and outside Loop 1604; there will be minimal infill development or redevelopment within San Antonio's urban core.
- *Transit Oriented Development (TOD) Scenario* – assumes growth will occur along major transit corridors and focuses higher density, mixed use development within walking distance of transit stations.
- *Infill Development Scenario (IND)* – concentrates growth inside of Loop 1604 by increasing density through compact, mixed use development, in the urban core.





1 **Figure 1-7: Population by county within the US 281 demographic study area**



2  
3 Sources: US Census 1980, 1990, 2000, 2005, 2008 & 2010; SA-BC MPO Forecast 2015, 2025 & 2035, June 2009.

4 The SA-BC MPO Transportation Policy Board adopted a combination of the TOD and  
5 IND scenarios for use in *Mobility 2035*. The different socioeconomic land use scenarios  
6 have notably different population and employment projections in the US 281  
7 demographic study area. The adopted TOD+IND scenario projects the future 2035  
8 population to be 33 percent lower than the CTD scenario in the US 281 demographic  
9 study area, an estimation difference in future population of over 70,000. (US 281 EIS  
10 Team 2010). The TOD+IND scenario policy forecast is highly dependent on the ability of  
11 local agencies to regulate growth in the region. At present, regulatory tools for  
12 controlling where growth will occur in Bexar County are limited. Bexar and Comal  
13 counties, like other county governments in Texas, do not have growth controls over  
14 development. Only incorporated cities and towns have the authority to control land use  
15 in Texas.

16 The SA-BC MPO prepared their demographic forecasts for 2015, 2025 and 2035 prior to  
17 the availability of 2010 Census data. The SA-BC MPO is required to update their MTP  
18 by December 2014.

## 19 **Traffic Growth**

20 Population and employment growth within the area surrounding the US 281 project  
21 corridor have led to increased traffic volumes on US 281. **Table 1-1** shows historic and  
22 forecasted Average Daily Traffic (ADT) volumes on US 281 at the southern and northern  
23 ends of the US 281 project corridor. US 281 project corridor traffic volumes have grown  
24 substantially since 1990 when the last additional capacity was constructed on US 281  
25 (between Bitters Road and Sonterra Boulevard, which includes the southern end of the  
26 US 281 project corridor). ADT is anticipated to increase substantially by 2035 according  
27 to the SA-BC MPO's adopted TOD+IND land use scenario.



1 **Table 1-1: Historic and Forecasted Average Daily Traffic**

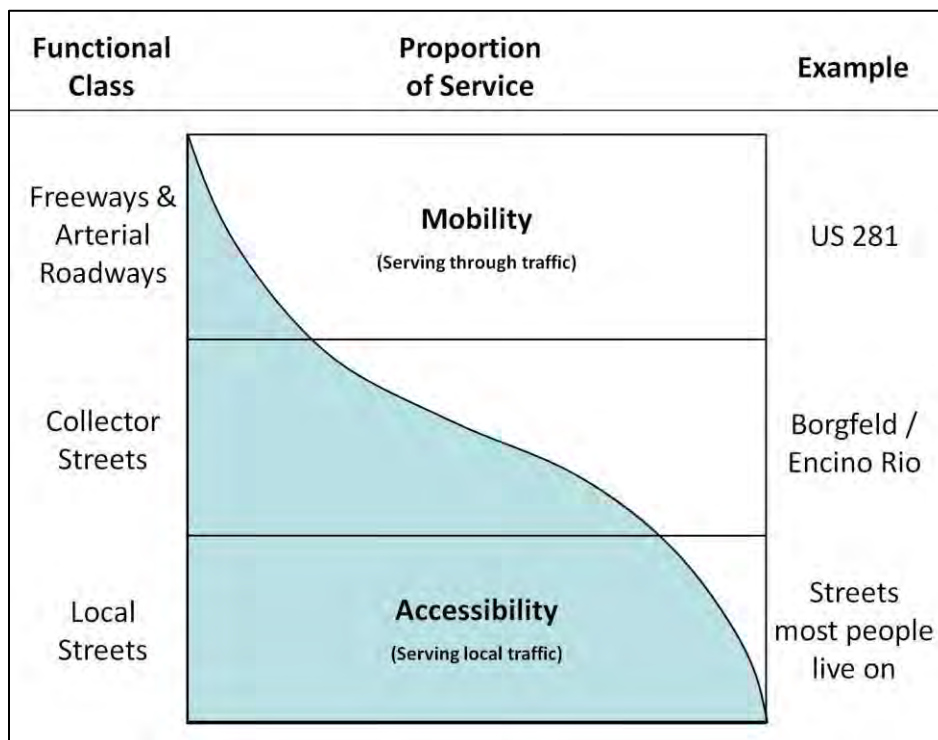
US 281 Location	Average Daily Traffic						
	1980	1990	2000	2010	Forecasted 2035 Demand	Compound Annual Growth Rate 1980 - 2010	Compound Annual Growth Rate 2010 - 2035
0.5 miles north of Borgfeld	5,300	12,000	28,000	30,000	140,000	5.95%	6.36%
0.3 miles north of Loop 1604	8,600	24,000	51,000	133,000	205,000	9.56%	1.75%

2 Source: TxDOT, 1980, 1990, 2000 & 2010; SA-BC MPO Travel Demand Model, 2010, US 281 EIS Team, 2010

### 3 1.3.2 Functionality

4 Roadway functional classes designated by FHWA are based on the level of mobility and  
5 accessibility provided, as illustrated in **Figure 1-8**.

6 **Figure 1-8: Roadway functional class**



7 Source: FHWA, 1989

8  
9 Freeways and arterial roadways are intended to serve the mobility needs of through-  
10 trips, whereas collector and local streets are designed for the accessibility needs of local  
11 traffic. TxDOT classifies the US 281 project corridor as an Urban Principal Arterial  
12 roadway from approximately Loop 1604 to Stone Oak Parkway, and a Rural Minor  
13 Arterial roadway from Stone Oak Parkway to Borgfeld Drive. As such, the US 281  
14 project corridor has historically served an important role for vehicle trips entering or  
15 leaving the San Antonio urban area. For roadways like the US 281 project corridor,  
16 access to adjacent properties is typically subordinate to the needs of through-trips.





However, land development along the US 281 project corridor and the resulting growth in population and employment has placed greater demand on US 281 to provide more local access. Over the last several decades, this shift in the functional requirement for the US 281 project corridor has led to more and more intersecting driveways and cross-streets. As of 2012, US 281 from Loop 1604 to Borgfeld Drive has 7 signalized intersections, 19 intersections without signals, and approximately 114 driveways. This represents about 140 locations along the US 281 project corridor where vehicles are slowing down, stopping and turning.

Previous transportation improvements along the US 281 project corridor, listed in **Table 1-2**, show how the need for access has been primarily addressed by the addition of traffic signals. Capacity improvements—the addition of travel lanes to accommodate more traffic volume—have not been constructed for most of the US 281 project corridor since 1975, when US 281 was expanded from two lanes to four lanes from Loop 1604 to the Comal County line. The US 281 project corridor is becoming increasingly incapable of serving the needs of through-trips due to the high number of access points serving local trips. These competing purposes of US 281, combined with the lack of capacity improvements, have resulted in traffic congestion, especially during peak or rush hour travel times.

**Table 1-2: History of US 281 Improvements**

Section	Construction Activity	Year Completed
US 281 from Loop 1604 to Comal County line	Construction of 4 lane from 2 lane	1975
US 281 at Encino Rio Road	Installation of traffic signals	1986
US 281, from Bitters Road to 0.5 miles north of Loop 1604	Expansion to 6-lane expressway, including 3-level diamond interchange at Loop 1604	1990
US 281 at Bulverde Drive	Installation of flashing beacon	1998
US 281 at Borgfeld Drive	Installation of flashing beacon	1998
US 281 at Evans Road	Installation of traffic signals	1998
US 281 at Stone Oak Parkway	Installation of traffic signals	2002
US 281 at Bulverde Drive	Installation of traffic signals	2003
US 281 at Borgfeld Drive	Installation of traffic signals	2003
US 281 at Sonterra Boulevard	Construction of Interchange	2004
US 281 at Marshall Road	Installation of traffic signals	2006
US 281 at Overlook Parkway	Installation of traffic signals	2006
US 281 at Encino Rio Road, Evans Road, Stone Oak Parkway and Marshall Road	US 281 Super Street Improvements	2010
US 281/Loop 1604 Interchange	4 Direct Connectors (southern half)	Anticipated 2013

Source: Alamo RMA, 2012, TxDOT, 2012

## Congestion

Increased travel demand, competing traffic movements, and the absence of capacity improvements have resulted in deteriorating traffic conditions. A 2009 travel time study revealed that vehicles travelled between Loop 1604 and Marshall Road at an average speed of 30 miles per hour (mph) in the southbound direction during the morning peak travel time (7:00 a.m. to 9:00 a.m.) and 23 mph in the northbound direction during the evening peak travel time (4:00 p.m. to 6:00 p.m.) (US 281 EIS Team 2009).



These speeds represent an unstable flow of traffic which makes it challenging for motorists to switch between lanes. Traffic conditions in 2009 resulted in a 19-minute southbound trip during the morning peak and a 28-minute northbound trip during the evening peak. Northbound trips during the evening peak in 2009 between Loop 1604 and Marshall Road experienced the most congestion, with every vehicle moving in lockstep with the vehicle in front of it, and frequent slowing and stopping was required.

A 2009 study conducted by TxDOT reported that US 281 from Loop 1604 to the Comal County line is the thirty-eighth (out of 100) most congested roadway segment in Texas. According to the study the US 281 corridor experienced over 149,000 annual hours of delay per mile in 2009 and incurred a cost of \$25.67 million in lost time and wasted fuel as a result of congestion (TxDOT 2010a). The US 281 Super Street improvements are intended to improve travel speeds; however, these improvements are not expected to provide lasting congestion relief. The purpose of the US 281 Super Street improvements is to enhance mobility and operational efficiency in the near-term.

### 1.3.3 Safety

There were over 4,000 crashes on US 281 between Loop 1604 and the Borgfeld Drive area during a seven-year period from 2003 through 2011 according to reports generated by the Texas Department of Public Safety (DPS). Twelve of these crashes involved a fatality and 239 involved an injury. The annual number of crashes along the US 281 project corridor has increased over the nine-year period from 388 crashes in 2003 to 489 crashes in 2011. During this nine year period, the US 281 project corridor reached its worst year for crashes in 2008 when 545 were recorded, including two fatal crashes. Of the 12 fatal crashes within the US 281 project corridor from 2003 to 2011, three occurred north of Marshall Road and nine occurred at or south of Marshall Road. **Table 1-3** provides the crash data.

**Table 1-3: US 281 Project Corridor Crashes, 2003 – 2011**

Year	Total Crashes	Crashes at Intersections	% Crashes at Intersections	Crashes In-Between Intersections	% Crashes In-Between Intersections	Crashes Involving Injury	Crashes Involving Fatality	Location of Fatal Accidents on US 281
2003	388	166	43%	222	57%	23	2	At Borgfeld Drive Intersection and Between Stone Oak Parkway & Marshall Road
2004	396	179	45%	217	55%	29	1	At US 281/Loop 1604 Interchange
2005	460	173	38%	287	62%	23	0	None
2006	449	170	38%	279	62%	28	2	Between Wilderness Oak & Overlook Parkway and at Marshall Road Intersection
2007	514	205	40%	309	60%	28	1	Between Stone Oak Parkway & Marshall Road
2008	545	254	47%	291	53%	24	2	At Evans Road Intersection and Between Overlook Parkway & Bulverde Road
2009	413	221	54%	192	46%	18	2	Between Redland Road & Encino Rio Road and Between Sonterra Boulevard & Redland Road
2010	447	208	47%	239	53%	44	2	Stone Oak Intersection and Encino Rio Intersection
2011	489	221	45%	268	55%	50	0	None
Total	4,101	1,797	44%	2,304	56%	239	12	9 at or south of Marshall Road, 3 north of Marshall Road

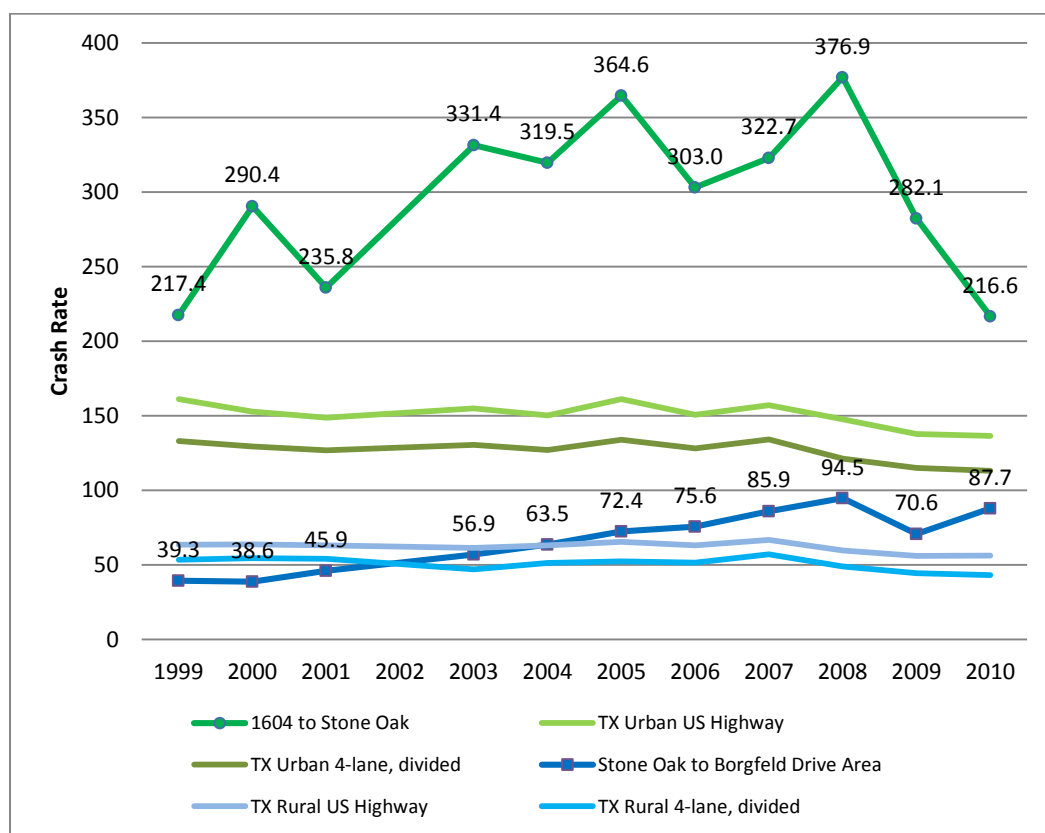
Source: Texas Peace Officer's Crash Reports, DPS, TxDOT, 2012



The crash rate, or number of crashes per 100 million Vehicle Miles Traveled (VMT), was compared with statewide average crash rates for similar facilities (US Highways and four-lane divided roadways). Along the more urban section of US 281 (Loop 1604 to Stone Oak Parkway), the annual crash rates from 2003 through 2010 were much higher than similar urban facilities in Texas. The crash rates of the more rural section of US 281, (Stone Oak Parkway to the vicinity of Borgfeld Drive) were also higher than comparable rural facilities in Texas. **Figure 1-9** provides the comparisons.

As previously mentioned, there are 140 places along the US 281 project corridor at which vehicles may be turning onto or off of US 281. During the period from 2003 through 2011 approximately 44 percent of all crashes occurred at intersections (**Table 1-3**), accounting for 797 crashes. While many factors contribute to vehicle crashes (such as bad weather, driver inattentiveness, driving while intoxicated), the location of crashes along this particular corridor suggests that the numerous conflict points have played a role in making the US 281 project corridor's crash rates higher than statewide averages.

**Figure 1-9: Crash rates on US 281 compared to Texas statewide crash rates**



Source: Texas Peace Officer's Crash Reports and Statewide Traffic Crash Rates, DPS, TxDOT, 2012

### 1.3.4 Community Quality of Life

The US 281 project corridor is a familiar place to a lot of people. Some live in one of the nearby neighborhoods, others work at one of the businesses, shop, dine, or attend school there. Many are regular commuters. US 281 is part of how they experience everyday life. Its qualities and characteristics can influence their health and overall well-being.

In addition to the congestion, travel delays, and safety concerns already discussed, four aspects of the US 281 project corridor tend to stand out when it comes to the quality of



life for those residents and others who experience it on a personal level: harmful vehicle emissions, excessive noise levels, an unappealing visual setting, and the lack of transportation choices. These aspects of the need for improvements to the US 281 project corridor, while perhaps less important to motorists who must contend daily with travel delays and safety, are nevertheless important considerations for the residential and business neighbors who live and work there.

The brief statements that follow are discussed in detail in **Chapter 3 Affected Environment and Environmental Consequences**.

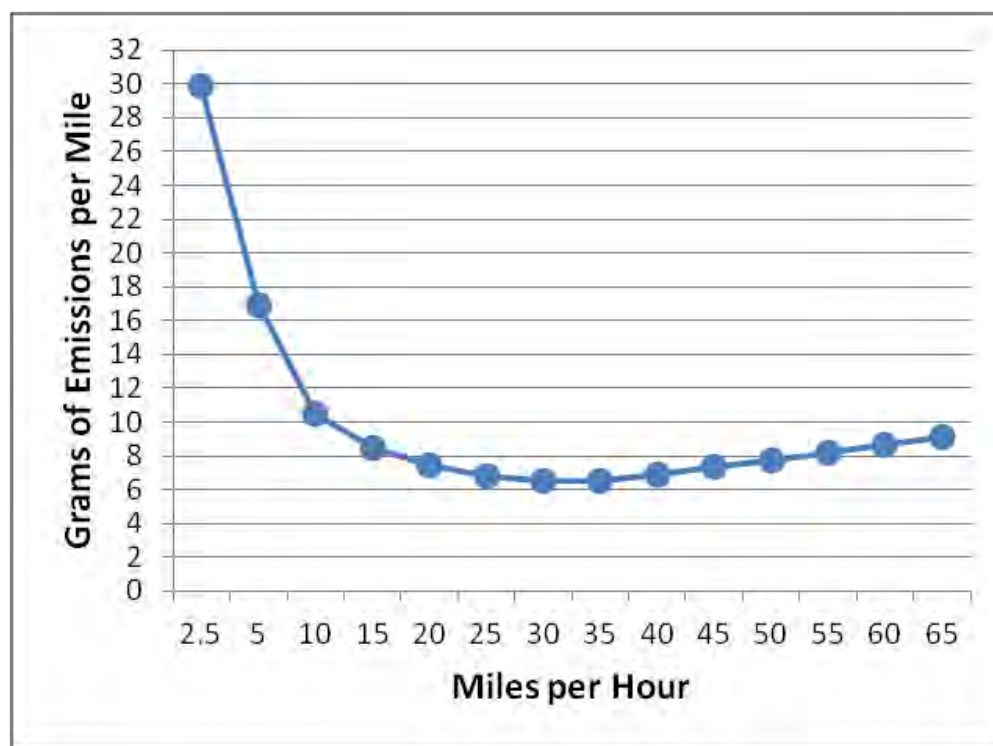
### **Harmful Vehicle Emissions**

Carbon monoxide (CO) is a colorless, odorless, poisonous gas. According to the US Environmental Protection Agency (EPA), persons with heart disease, infants, elderly persons, and individuals with respiratory diseases are particularly sensitive to CO. CO can also affect healthy individuals, impairing exercise capacity, visual perception, manual dexterity, learning functions, and ability to perform complex tasks. Nationwide, two-thirds of the CO emissions come from transportation sources, with the largest contribution coming from highway motor vehicles. Today's passenger cars are capable of emitting 90 percent less carbon monoxide over their lifetimes than their uncontrolled counterparts of the 1960's. As a result, carbon monoxide levels in the surrounding environment have dropped, despite large increases in the number of vehicles on the road and the number of miles they travel. With continued increases in vehicle travel projected, however, carbon monoxide levels will begin to climb again unless even more effective emission controls are employed (EPA 1993).

Peak travel time speeds along the US 281 project corridor, which averaged 23 to 30 mph in the 2009 travel time study, represent stop and go conditions, where the vehicle when stopped at a traffic signal is idling or very slow (0-10 mph) and at other times is moving at a higher speed (50-60 mph). As illustrated in **Figure 1-10**, emission rates are high at the lower speed levels and therefore peak travel periods produce high emissions. If congestion is reduced and vehicles do not have to stop as much, CO emissions would be reduced. In other words, stopped and slower moving traffic on the US 281 project corridor during peak travel times generates higher levels of CO emissions per mile, as shown in the figure. Two of the most effective ways to reduce CO levels are reducing congestion and increasing travel speed (see **Section 3.7**).



1 **Figure 1-10: 2010 Carbon monoxide emissions by speed on San Antonio arterial roadways**



Source: Carbon Monoxide Look-up Tables, Environmental Resources Publications, TxDOT, 2010

#### Excessive Noise Levels

The growth in traffic volume on US 281 over the last several decades has led to increased noise levels along the US 281 project corridor. Neighbors along the US 281 project corridor have expressed their irritation over current traffic noise levels and their concern that the problem will get worse as traffic volumes continue to grow over the coming years (see **Section 3.8**).

#### Lack of Visual Appeal

Quality of life for residential and business communities along the US 281 project corridor is influenced by the visual quality of the highway travel experience. FHWA regulations recognize the relationship between highway corridor landscapes and how communities view the attractiveness of where they live and work. According to FHWA, "highway aesthetics is a most important consideration in the Federal-aid highway program. Highways must not only blend with our natural, social, and cultural environment, but also provide pleasure and satisfaction in their use" (23 Code of Federal Regulations [CFR] Part 752, Landscape and Roadside Development). Initiatives such as context sensitive solutions aim to improve community livability by using transportation improvements as opportunities to create an environment that is tailored to the roadway's unique natural, social and cultural setting.

The US 281 project corridor does not currently contain improved landscaping or aesthetic treatments, nor is it tailored to its unique setting as a transition area between urbanized San Antonio and the rural Texas Hill Country. The proposed transportation improvements to US 281 present an opportunity to improve the livability of the neighboring communities around the US 281 project corridor (See **Section 3.20**).





## Lack of Transportation Choices

The US 281 project corridor is underserved by public transportation and lacking in safe facilities for walking and biking. VIA Metropolitan Transit (VIA), San Antonio's public transportation provider, currently operates three bus routes that access the south end of the US 281 project corridor in the vicinity of the US 281 interchange with Loop 1604, providing express bus service to and from downtown San Antonio ("US-281 Express"), local bus service to and from downtown San Antonio via Blanco Road ("Blanco"), and local bus service between North Star Mall and North Central Baptist Hospital ("North Star/Stone Oak"). Other than these bus routes, no public transportation service is provided within the US 281 project corridor. New crosswalks and pedestrian signal heads were installed at Encino Rio, Evans Road, Stone Oak Parkway and Marshall Road as part of the US 281 Super Street improvements. No sidewalks or designated bike lanes are provided within the US 281 project corridor.

The lack of public transportation service and pedestrian and bicycle facilities means that residential and business communities along the US 281 project corridor must rely almost exclusively on private vehicular access. Safe alternative forms of access do not exist for those who either cannot have (mobility impaired) or prefer not to have (walking and biking enthusiasts) all of their trips begin and end in an automobile. The unmet need for alternative facilities is evident by the dirt foot paths that people have created (See **Section 3.5**).

The importance of developing multi-modal approaches to solve San Antonio's mobility needs is reflected in the following excerpts from *Mobility 2035*:

- "Public transportation benefits all persons who live, work, or travel in the service area, whether or not they use it. Public transportation plays an important role in the regional transportation system and hence, the regional economy. The additional automobile volume and congestion that the area would experience without transit, would cause an increase in on-road air emissions, resulting in deteriorated air quality for the entire region. Beyond these indirect benefits, public transportation provides a direct benefit to those who use it, by allowing an alternative to the cost and issues associated with driving, congestion, and parking for the 'choice riders' that have transportation options."
- "Alternative transportation systems can enrich the livability of a community and reduce congestion, improve mobility, as well as improve the overall quality of life for residents."
- "San Antonio and Bexar County recognize bicycling as a clean, healthy and affordable form of transportation and recreation. A comprehensive on-road and off-road bicycle network will make our community a place where bicycling will be desirable for trips of all kinds by all segments of the population."

Worn vegetation along the roadway reveals that pedestrians are seeking safe places to walk along the US 281 project corridor.



Photo of multi-use path, courtesy of the City of San Antonio's Office of Environmental Policy, *Mobility 2035*



### 1.3.5 Summary of Needs for the US 281 Corridor Project

Over the last 30 years the number of people living and working within the northern Bexar County and southern Comal County area that surrounds the US 281 project corridor has grown considerably,



creating a demand for peak hour travel capacity that to this day goes unmet. Previous attempts to make major improvements to US 281 between Loop 1604 and Borgfeld Drive have failed. The consequences of these failures can be seen in lengthy travel delays, higher than average vehicle crash rates, air pollution, excessive traffic noise, a visually unappealing landscape, and a transportation corridor without some of the most basic elements of mobility: public transportation and sidewalks. Without improvements to the US 281 project corridor the area's anticipated growth in population and employment over the next 25 years will lead to further declines in functionality, safety, and community quality of life.

## 1.4 PURPOSE OF THE PROPOSED ACTION

The purpose of the US 281 Corridor Project is to improve mobility and accessibility, enhance safety, and improve community quality of life. The project has logical termini and independent utility per FHWA regulations (23 CFR 771.111(f)). The following goals and objectives help to further define the purpose of the proposed action.

### 1.4.1 Project Goals and Objectives

Goals and objectives for US 281 Corridor Project were derived from the evaluation of the problems and needs identified by previous studies, from public input during the scoping process, and from meetings with the US 281 Community Advisory Committee (CAC) and the US 281 Peer Technical Review Committee (PTRC). (See **Chapter 6 Public and Agency Coordination** for more information about the CAC and PTRC.) The US 281 CAC is composed of representatives of residential, business and other stakeholders' organizations, including civic, community and environmental groups, education institutions and businesses located within San Antonio. The US 281 PTRC is composed of representatives from the agencies and local governments that have a role in funding, permitting, and/or planning/implementing proposed transportation improvements in Bexar County. The goals and objectives were established to help define the direction and character of the EIS and used as points of reference during the development and evaluation of potential alternatives to determine how well each potential alternative performed.

#### Address Growth

- satisfy travel demand
- be consistent with local and regional plans and policies
- develop facilities for multi-modal transportation
- allow for future high capacity transit

#### Improve Functionality

- reduce travel time and increase travel speeds
- reduce conflicts between local and through traffic
- improve access to adjacent property

#### Improve Safety

- reduce crash rates

#### Improve Quality of Life

- avoid/minimize adverse social & economic impacts
- avoid/minimize water quality impacts



- avoid/minimize impacts to wildlife habitat
- enhance air quality
- minimize noise impacts
- maximize use of non-toll funds
- provide for aesthetics and landscaping
- provide facilities for walking & biking

## 1.5 DEVELOPMENT OF TRANSPORTATION PROJECTS

The planning process for any large transportation project begins at the regional level. Prior to beginning this EIS, regional transportation needs were identified through a long-range planning process involving local, regional, state, and federal transportation officials. The process was based on current needs, future growth, and available transportation funding. It resulted in the MTP for this region, known as *Mobility 2035*, which was adopted by the SA-BC MPO on December 7, 2009 and updated January 28, 2013.

The SA-BC MPO is responsible for regional transportation planning in the greater San Antonio area. Since the early 1970s MPOs have had the responsibility of developing and maintaining an MTP. The MTP is federally mandated; it serves to identify transportation needs and guides federal, state, and local transportation expenditures. Improvements for US 281 between Loop 1604 and the Bexar/Comal County line have been included in the two most recent plans (**Table 1-4**).

**Table 1-4: Inclusion of US 281 in SA-BC MPO Metropolitan Transportation Plans**

Metropolitan Transportation Plan	Date Plan was Adopted	Projects in MTP for the US 281 Corridor (Loop 1604 to Bexar/Comal County Line)
<i>Mobility 2035</i>	Adopted 12/07/2009 Updated 10/25/2010, 04/25/2011, 07/25/2011, 10/24/2011, 4/23/2012, and 1/28/2013	Loop 1604 to Bexar/Comal County Line – expand to six lane expressway (four non-toll and two managed lanes through Stone Oak Parkway; six managed lanes from Stone Oak Parkway to the Bexar/Comal County Line)
		Loop 1604 to Stone Oak Parkway - Expand to four lane expressway (four non-toll lanes) and non-toll northern interchange connectors at Loop 1604
<i>Mobility 2030</i>	Approved 12/06/2004 Updated 10/28/2005	0.4 miles north of Loop 1604 to 0.7 miles north of Stone Oak Parkway & 2.5 miles north of Loop 1604 to Bexar/Comal County Line – expand to six lane expressway with four lane frontage roads (toll six new main lanes)
		At Loop 1604 – expand interchange with tolled direct connectors

Source: SA-BC MPO, 2013

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) strengthened the role of the MTP and made it the central mechanism for the decision-making process regarding transportation investments. The passage of the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) in 1998 continued this emphasis. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law on August 10, 2005. SAFETEA-LU addresses the challenges on our transportation system such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment. Both SAFETEA-LU and the Clean Air Act Amendments of 1990 (CAAA)



1 impose certain requirements on an urbanized area's long-range transportation plan.  
2 Transportation plans such as *Mobility 2035*, according to SAFETEA-LU metropolitan  
3 planning regulations, must be "fiscally constrained," that is, based on reasonable  
4 assumptions about future transportation funding levels.

5 Improvements to US 281 between Loop 1604 and Borgfeld Drive have been a long-  
6 standing component of the region's transportation plans. The inclusion of US 281  
7 Corridor Project in *Mobility 2035* indicates regional support. The City of San Antonio,  
8 Bexar County, VIA and TxDOT have demonstrated long-term support for the project by  
9 including US 281 improvements on all of these regional plans. The US 281 Corridor  
10 Project is programmed in *Mobility 2035*, FY 2011-2014 TIP, and FY 2013-16 TIP as a  
11 partial toll road, and part of a proposed regional system of toll roads that are planned in  
12 the San Antonio area. According to *Mobility 2035* the system of toll roads is expected to  
13 open between 2015 and 2030. Each proposed facility would have logical termini and  
14 independent utility. While not connected actions, in the context of the Council on  
15 Environmental Quality NEPA regulations (40 CFR 1508.25), the proposed system of toll  
16 roads would be part of a transportation network serving the long-term transportation  
17 needs of the region. Because Environmental Justice (EJ) and other resource  
18 considerations should be taken into account when planning a system of independent toll  
19 road projects, a planning-level assessment was conducted to assess how such a system  
20 could indirectly or cumulatively affect EJ populations and other respective resources in  
21 the region (see **Section 3.4.3**).

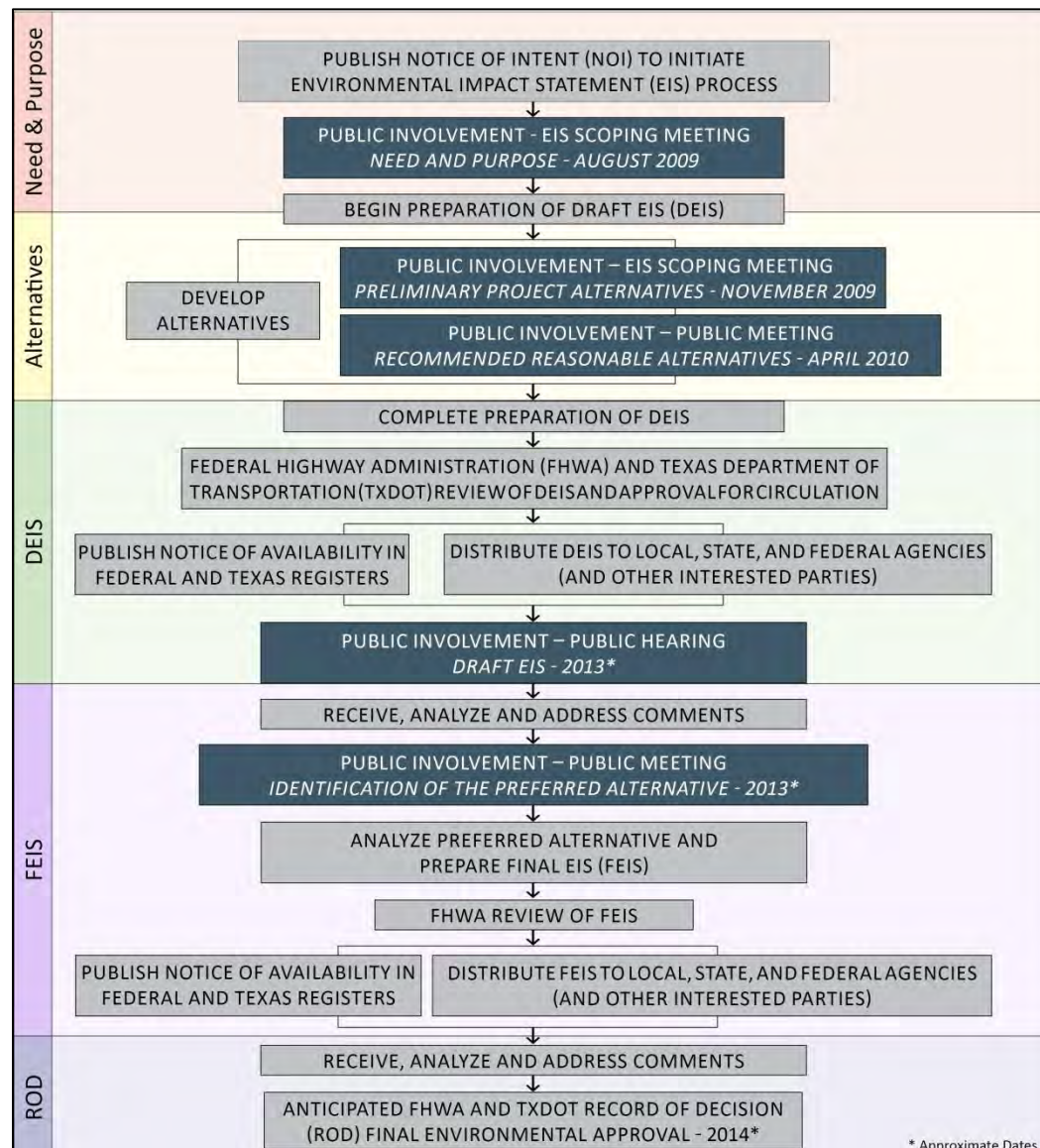




### 1.5.1 The EIS Process

**Figure 1-11** shows the steps involved in the EIS process. This Draft EIS includes the development and evaluation of alternatives through a public and agency involvement process. Based on the data, the most viable alternatives including the No-Build Alternative, are developed at a higher level of detail for further study in the Draft EIS. Environmental field investigations, traffic analysis, and costs are also developed to determine if a transportation project is feasible and to identify potential effects on the community and environment.

**Figure 1-11: EIS flow chart**



Source: US 281 EIS Team, 2013

Once the environmental studies are completed, the results are documented in this Draft EIS that is reviewed by federal and state agencies, decision-makers, and the public. The Draft EIS is designed to help decision-makers assess potential effects of each alternative. The Draft EIS presents the potential effects of the No-Build Alternative and reasonable Build Alternatives. Since the Draft EIS does not identify the Preferred Alternative, one would be identified in the Final EIS based on the analysis in the Draft EIS and comments





received from resource agencies and the public during the 45-day review period as well as 10 days following the public hearing. The Final EIS and response to comments received during the Final EIS would then be considered and approved by the FHWA. A Record of Decision (ROD) issued by FHWA would complete the EIS process. Typically, the next phase of the project is to develop detailed construction plans, acquire the needed right-of-way, and then begin construction. Most large projects are constructed and open to traffic in stages because of funding availability and the need to minimize traffic impacts during construction.

### 1.5.2 Role of the Draft EIS

The Notice of Intent (NOI) to prepare an EIS for US 281 from Loop 1604 to Borgfeld Drive was published in the Federal Register on July 8, 2009. A copy of the NOI is posted on the US 281 Corridor Project website at [www.411on281.com/us281eis](http://www.411on281.com/us281eis). This began the formal scoping process for the project in accordance with NEPA. This project conforms to the provisions of Section 6002 of the SAFETEA-LU (23 U.S. Code [USC] §139). The primary purpose of the Draft EIS is to assess the potential environmental effects of the No-Build and Proposed Build Alternatives. It also serves as the primary document to facilitate review of the alternatives by federal, state, regional, and local agencies, decision-makers, and the public. The Draft EIS documents the anticipated social, economic, and environmental effects of the proposed project and provides definition for appropriate mitigation measures. A preferred alternative would be recommended and documented in the Final EIS based on the Draft EIS and public and agency comments.